

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

SOME REPTILES AND AMPHIBIANS FROM VIRGINIA,
NORTH CAROLINA, TENNESSEE AND ALABAMA.

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In the summer of 1919, I collected in the Southern States, for the Museum of Comparative Zoology, the work centering around the mountains. It has seemed worth while to record the localities and to add a few notes on the salamanders. I wish to express my gratitude to the authorities of the Museum of Comparative Zoology and especially to Dr. Thomas Barbour for the opportunity of making this trip.

LIST OF COLLECTING LOCALITIES.

Mt. Vernon, Va.; June 20 and 23; Coastal Plain; heavy, damp woods, swamp and tidal flats; altitude below 100 feet.

Dogue Creek, Va.: June 21; Coastal Plain; the flood plain of a small stream; open meadow land; altitude below 100 feet.

Crozet, Va.: August 28; foot of the Blue Ridge in the interior valley of Albemarle and Nelson Counties, Va.; altitude 700 feet. I include here some specimens taken by my brother, R. A. Dunn, during August and September.

Midway Mills, Nelson Co., Va.: June 26-July 6, Aug. 22 and 24; plateau deeply dissected by the James River and small tributaries; river altitude 350 feet, plateau level 550 to 600 feet.

Manteo, Va.: June 30; same general region as Midway.

White Top Gap, Va., High Southern Blue Ridge: July 9-11; White Top Mt. in the Stone Mountains is 5520 feet. The altitude of the more level country is about 3500 feet, and is apparently the same plateau-like surface as at Linville, and is possibly the Kittattinny peneplain. White Top Mt. is wooded at the base with a chestnut-white oak forest and at the top with a fir forest. In between the two is what is now, and has been for a long time, pasture land.

Abingdon, Va.: July 13; Holston Valley at 2000 feet. Typical Appalachian valley country with narrow ridges and broader valleys alternating.

Linville, N. C.: July 15-22; country generally similar to White Top Gap (see also Dunn, Bull. American Museum of Natural History, Vol. 37, pp. 593-634).

Mt. Sterling, N. C.: July 24-26, Great Smoky Mts. The gap of the Pigeon river forms the northern boundary of the range. Sharp Top or White Rock Mt. is the most northern peak, altitude about 5100 feet; the valley at Mt. Sterling is 1500 feet.

Spring City, Tennessee: July 29-31; in the Appalachian Valley at the foot of the Cumberland escarpment. The Cumberland plateau has here a general level of 1600 feet and Spring City itself is 781 feet.

Chattanooga, Tenn.: Aug. 1-3; I visited Signal Mt. and Lookout Mt., both about 2000 feet high, and on opposite sides of the Tennessee, near Chattanooga.

At the three places where I visited the Cumberland plateau, forest fires had practically spoiled the region for collecting. At Spring City the hills are burnt systematically every fall in order to provide better pasturage for the cattle. The larger trees are not destroyed but the effect on the small fauna and on forest development can be imagined.

Anniston, Ala.: Aug. 6-18; southern end of Appalachian valley, alternating ridges and valleys; a region of much underground drainage and with few and large springs and few running streams. A drought was on at the time I was there. Most of my collecting was done in the limits of Camp McClellan and at 800 feet alt.

Morrisville, Ala.: Aug. 11 and 18. Similar to Anniston, but out in the valley away from the ridge. Alt. 550 feet.

SPECIES.

Triturus viridescens (Rafinesque).

Midway (June 29, July 2), 2 red land forms; Linville (July 15-19), 17 water forms in pond at 3800 feet, 17 land forms at 4200 feet; Spring City (July 29), 1 red land form, 1500 feet.

It may be noteworthy that the newt is comparatively rare in unglaciated upland country and usually found in the red land stage *except* where artificial ponds have been put in as at Linville where the newt is as common in both stages as one finds it in glaciated New England.

Ambystoma maculatum (Shaw).

Mt. Vernon, one adult; Midway, 2 larvæ in a pool of water in an abandoned quarry.

Ambystoma opacum (Green).

Mt. Vernon, an immature specimen with the transverse bars not apparent, rather irregularly mottled with white, probably recently transformed from an egg laid in the fall (see Dunn, 1917).

Plethodon yonahlossee Dunn.

White Top (4000 feet), 6 (new record for Virginia); Linville (4200 feet), 8.

The habitat and habits of this salamander are the same at White Top as at Linville. At the latter place specimens were taken at the original type locality and also about five miles nearer Blowing Rock, in a second growth oak forest along the Yonahlossee road.

***Plethodon glutinosus glutinosus* (Green).**

Mt. Vernon, 4; Midway, 1; White Top (up to 3800 feet), 12; Abingdon; Linville (up to 4200 feet), 15; Mt. Sterling (up to 3500 feet), 2; Spring City (1000 feet), 10; Anniston, 3.

***Plethodon jordani* Blatchley.**

Mt. Sterling, 37 (new record for North Carolina); from 4000 to 4500 feet on Sharp Top Mt. Very common, especially in rotten logs. It apparently replaces *P. metcalfi* in the Smokies as the latter was not found on Sharp Top. Judging from the specimens I have seen *P. metcalfi*, *P. shermani*, and *P. jordani* form a closely related group. *P. shermani*, of which I have seen three specimens, the type and two others from Wayah Bald Mt. in the Nantahala Range, probably replaces *P. metcalfi* in that range just as *P. jordani* seems to do in the Smokies. Of *P. jordani* I have seen only the present series, and one other with no more definite locality than "Tennessee," but which in all probability came from the Smokies as did the type. Three of my series lacked the red stripe on the side of the head which is so striking a mark of this species. One of these had red dots on the legs. The specimens vary in the size of the stripe and in the amount of pigment present. This seems not at all correlated with age or sex.

Of *metcalfi*, I have seen the large series listed below and in addition some 150 specimens of my own collecting in the American Museum from the Blue Ridge and the Pisgah Ridge and others in Washington, Cambridge, and Philadelphia from other localities in the North Carolina mountains.

The vomerine tooth series is shortest in *shermani* and longest in *jordani* but individual variation in *jordani* and *metcalfi* may show specimens which have as few teeth as the Nantahala species. The parasphenoids are utterly unreliable for identification. I can detect very little difference in the proportions of these three forms, though the head of *jordani* is somewhat broader and the snout less swollen than in *metcalfi*. This, however, varies quite a bit in individuals. The surest characters then are those of color. All the known specimens of *shermani* have red legs. This is the only species from the Nantahala range. *P. jordani* from the Smokies is very black with a red stripe on the side of the head but in about 8% of the specimens this stripe is lacking. Dots of red may be present on the legs. I am inclined to believe that it is mere coincidence that in the one specimen with red on the legs the stripe is absent from the cheeks.

P. metcalfi is the lightest in body color and has no red markings. It was described from the Balsams and is further known from the Blue Ridge, the Pisgah Ridge, the Cowee Mts., and the Tuskwitty Range in North Carolina, the Iron Mts. in Tennessee and Virginia, and Brasstown Bald

Mt. in Georgia. It seems odd that no form of this group has yet been taken in the Black Mts. Probably all the ranges of the Southern Appalachians which have any considerable area above 3000 feet support an animal of this group. Most of them are inhabited by *metcalfi* but on two ranges are forms which have developed or retained red in the coloration.

***Plethodon metcalfi* Brimley.**

White Top (3500–4500 feet), 60 (new record for Virginia); Linville, 52.

Excessively common; with *D. o. carolinensis* the characteristic salamander of the woods above 3000 feet.

***Plethodon cinereus* (Green).**

White Top (4000 feet), 9; Linville (4200 feet), 17; Crozet, 1.

***Desmognathus quadra-maculatus* (Holbrook).**

White Top, 29; Abingdon, 2; Linville, 38; Mt. Sterling, 6.

***Desmognathus monticola* Dunn.**

Midway, 5; Manteo, 3; White Top, 9; Linville, 8; Mt. Sterling, 4; Crozet, 4.

This species at Midway and Manteo lives at the heads of narrow deep ravines cut in the Piedmont plateau. Evidently mountain conditions are reproduced in these dark cool gorges.

***Desmognathus fuscus fuscus* (Rafinesque).**

Midway, 8; Manteo, 4; White Top (5000 feet), 14; Spring City, 15 (one with 15 eggs July 30); Anniston, 19 (with eggs Aug. 8, Aug. 18); Crozet, 3.

It may seem odd to find this species on White Top, but the conditions there make it evident that *fuscus* has come in from the west and is able to hold its own on account of the large unforested area on White Top. On the higher open meadows of this mountain *fuscus* is the species of salamander around the springs, while *monticola* is found in the narrow gorges shaded by heavy stands of timber.

***Desmognathus ochrophaeus carolinensis* Dunn.**

White Top (up to 5500 feet), 40 (new record for Virginia); Linville, 23; Mt. Sterling, 16.

Several of these were found in the spruce forest on top of White Top. No other salamanders reached so high—most dropping out as the pasture belt was reached.

***Gyrinophilus porphyriticus* (Green).**

Midway, one adult and one larva in spring.

***Gyrinophilus danielsi* (Blatchley).**

Linville, one adult under a piece of bark in woods and 4 larvæ in very small brooks.

***Pseudotriton montanus* Baird.**

Abingdon, one adult in mud near a spring; Spring City, one adult under a log in woods, and 2 larvæ in a spring.

Pseudotriton ruber ruber (Sonnini).

Midway, one adult under a log in woods, 2 larvæ in a spring; Anniston, 26 adults and larvæ taken in springs; Crozet, one larva in a spring.

Pseudotriton ruber schencki (Brimley).

Mt. Sterling, one larva in a spring.

The true state of affairs is not reflected in the classification if we recognize *schencki* from the southern half of the Southern Blue Ridge and call the animals from the rest of the mountains *ruber*. As a matter of fact the animals of the northern half of the Southern Blue Ridge are as worthy of racial recognition as *schencki*. *P. schencki* is marked by clear coloration and by special amount of black pigment on the chin. The race to be described has almost no black pigment in the chin and, indeed, has less black pigment than either *ruber* or *schencki*.

Pseudotriton ruber nitidus, n. sp.

Type, M. C. Z., No. 5649, adult female; White Top Mt., Va., 4000 feet (under a log in woods); July 11, 1919; E. R. Dunn, collector.

Diagnosis.—A red salamander with no black pigment on distal half of tail and little or none on chin. Distinct spots on dorsal surface. No dark ground color.

Description of Type.—Sixteen costal grooves counting axillar, six intercostal spaces between appressed toes; head flattened, rounded in outline, no canthus rostralis, head width $5\frac{1}{2}$ in distance from snout to vent. Head length 4 in body length. A groove along neck from eye to gular fold, a groove from this vertically down past angle of jaw, lower eyelid prolonged backward in a narrow fold. Tail short, flattened at tip, a raised keel on dorsal surface. Fingers short 3, 2, 4, 1 in order of length. Toes 3, 4, 2, 5, 1 in order of length. Red, lighter below, definite scattered spots on top of head, on back, on top of proximal half of tail and on upper surfaces of limbs. No markings on body or tail ventral to a line joining insertions of legs. A few dots along lower lip and on throat. Vomerine tooth series confluent with parasphenoid series, well separated from each other, each forming a right angle and passing beyond outer border of choanae which are small.

Dimensions.—Total length, 97; head, 12; body, 49; tail, 36 mm.

Remarks.—Occasional young specimens of the other two races of *ruber* may show the coloration of this form, but as a rule the black lips of *schencki* and the spotted tail tip of *ruber* appear upon transformation. Besides the type one was taken at Abingdon at the edge of a spring. Others have been seen from Linville, Cane River, Cranberry, Spruce Pine, Roan Mt., and Old Fort, N. C. Brimley records *ruber* from Burnsville, N. C., in all probability referring to this form. Typical *schencki* occurs at Asheville School, near Asheville, N. C., and *schencki*, with a definite trend toward *nitidus* in the less black on the chin and on the tail, at Marshall, N. C. Apparently *nitidus* inhabits the area bounded by the Stone Mts. and Iron Mts. to the west, the Blue Ridge to the east and the Black Mts. to the

south. This region is more of a high plateau country than is the habitat of *schrencki*, where the dissection is more mature. The range of *nitidus* is, then, that less dissected northern portion of the Southern Blue Ridge, which is also the region of *Leurognathus marmoratus* and of *Plethodon yonahlossee*. The type is remarkable in lacking a tongue, the slit for the tongue stalk being a mere groove. This is evidently due to some accident, but the animal seemed to be normal and to be getting along quite well without its complicated hyoid apparatus.

***Eurycea gutto-lineata* (Holbrook).**

Mt. Sterling (1800 feet), one adult and 16 larvæ in spring; Anniston, one adult in spring; Morrisville, one adult in spring; Crozet, two adults in spring.

***Eurycea longicauda* (Green).**

Mt. Sterling (1500 feet), one adult under a log in woods.

New record for North Carolina. In the South, as in the North, this animal seems to be working eastwards, but only north of the Potomac has it made much headway.

***Eurycea bislineata bislineata* (Green).**

Midway, 1 larva; Manteo, 1 adult; Abingdon (2000 feet), 2 adults, 1 larva; Spring City (1500 feet), 3 adults.

It seems necessary, upon careful consideration, to separate the animals of the Southern Blue Ridge as a race of *bislineata*. This race is almost immediately recognizable, but it is rather hard to frame a definition, on account of its variability in color. I name it for Mrs. H. H. Wilder, who has done a great amount of work on the life history of the typical form.

***Eurycea bislineata wilderae*, n. sp.**

Type, M. C. Z., No. 5848, adult male; White Top Mt., Va., 4000 feet (under log in woods); July, 1919; E. R. Dunn, collector.

Diagnosis.—Similar to *E. bislineata bislineata*, but adult male usually with cirri on upper jaw, and somewhat more slender in form, tail longer, markings usually a narrow black line on sides, broken or absent on distal half of tail.

Description of Type.—Costal grooves 15, counting axillar and inguinal. Four intercostal folds between appressed toes. Head width $6\frac{1}{2}$ times in length from snout to vent, head length $4\frac{1}{2}$ times in length of body. Head an elongate oval with blunt snout. Snout swollen, eye a little longer than its distance from tip of snout. Sides of naso-labial groove, swollen and prolonged into a cirrus whose tip is free and which is not an extension of the edge of the lip. Outline of upper jaw convex as viewed from the side, angle of jaw below eye and very narrowly separated from lower eyelid—a short groove connects edge of lip with groove of lower eyelid. A groove from eye along side of head almost to gular fold—latter on sides of neck to just above insertion of arm. Vomerine teeth series closely approximated

behind. Series equidistant from nares and from parasphenoid series, by $\frac{2}{3}$ length of vomerines, parasphenoids in two long narrow patches beginning behind middle of eye socket. Tail imperfect, a pointed ellipse in cross section. Yellow, a narrow black line from behind eye and above postocular groove, beginning as a series of spots on head, a line on the body, and breaking again into spots on the tail. Stripe distinctly bordered with lighter above and less distinctly below. Region between stripes dotted with black. Faint gray wash on sides. Limbs gray. Ventral surface immaculate.

Dimensions.—Total length, 56; head, 7; body, 27; tail (imperfect), 20 mm.

Variations.—No females seen have cirri. Occasional males lack them but I am unable to correlate this with age or season. The coloration is very variable. In general it is easy to distinguish a specimen of this form from one of the typical race and this on account of the sharp outlines of the black in *wilderae* and the usual absence in it of the dark wash, but occasional specimens are almost the reverse of this and, lacking all trace of the stripe, are uniformly dotted with black. Usually the stripe is absent on the distal half of the tail or is represented by a row of dots. But the color of *wilderae* is usually lighter and the markings more definite in outline than in any of the other races of *bislineata*. Besides the type and sixteen others from White Top Mt., Va., I have seen specimens of this form from Linville, Cranberry, Roan Mt., Black Mt., Mt. Mitchell, Cane River, Burnsville, Mt. Sterling, Pink Beds, Montreat, Blantyre, Brevard, Highlands and Henderson Co., North Carolina, from an unknown locality in Tennessee (probably in the Smokies) and from Clayton, Rabun Co., and Cherry Log, Gilmer Co., Ga. So that the range is the Southern division of the Blue Ridge. At Linville a batch of eggs was found hatching on July 19. They were attached to the under side of a stone in a brook just as are the eggs of *bislineata*.

White Top, 17; Linville, 8; Mt. Sterling, 11 larvæ.

***Eurycea bislineata cirrigera* (Green).**

Anniston, adults, larvæ; Morrisville, larvæ.

Specimens from Anniston and Morrisville represent this southern race, characterized by cirri in the males and by the dark area below the stripe being mottled with white, especially on the tail.

***Bufo americanus* Holbrook.**

White Top, 1; Linville, 3; Mt. Sterling, 1; Spring City, 4; Crozet, 1.

***Bufo fowleri* Garman.**

Mt. Vernon, 1; Midway, 5; Linville, 2; Anniston, 6; Crozet, 2.

***Acris gryllus* (Le Conte).**

Mt. Vernon, 1; Manteo, 1; Anniston.

***Hyla cinerea evittata* (Miller).**

Mt. Vernon, 28.

Hyla crucifer Wied.

Mt. Vernon, 4; Linville.

Hyla versicolor Le Conte.

White Top, 1; Linville,.

Rana catesbeiana Shaw.

Mt. Vernon, 2; Anniston.

Rana clamitans Latreille.

Mount Vernon; Midway; Spring City, 1; Anniston, 2; Crozet, 1.

Rana sphenoccephala (Cope).

Dogue Creek, 1; Anniston, 3.

Rana palustris Le Conte.

Mt. Vernon, 1; Manteo, 1; Midway, 1; Abingdon, 1; Spring City, 1.

Rana sylvatica Le Conte.

Mt. Vernon, 1; Abingdon.

Anolis carolinensis Voigt.

Anniston, 1.

Sceloporus undulatus (Latreille).

Mt. Vernon; Midway, 5; Manteo; Spring City, 1; Anniston, 1; Crozet.

Cnemidophorus sexlineatus (Linn.).

Midway; Spring City; Anniston.

Leiolopisma laterale (Say).

Mt. Vernon, 1; Midway, 1; Spring City, 1; Anniston, 1.

Plestiodon fasciatus (Linn.).

Mt. Vernon, 3; Midway, 1 (♀ with 12 eggs); Spring City, 2; Anniston, 3; Crozet, 1.

Carphophis amoena (Say).

Mt. Vernon, 1; Manteo, 1; Linville, 1; Spring City, 6; Anniston.

Diadophis punctatus edwardsii (Merrem).

Midway, 1; Linville, 2.

Heterodon contortrix (Linn.).

Midway, 1.

Coluber constrictor (Linn.).

Mt. Vernon, 1; Linville, 1; Spring City; Anniston.

Coluber flagellum (Shaw).

Anniston, 2.

Elaphe obsoleta confinis (B. and G.).

Chattanooga; Lookout Mt., 2000 feet, 1.

Lampropeltis getulus getulus (Linn.).

Mt. Vernon, 1.

Lampropeltis getulus niger (Yarrow).

Anniston, 1.

Lampropeltis triangulum triangulum (Lacepede).

Linville, 1.

Lampropeltis rhombomaculata (Holbrook).

Crozet, 1.

Natrix sipedon (Linn.).

Mt. Vernon; Midway, 2; White Top; Abingdon, 1; Linville, 3; Mt. Sterling, 3; Spring City, 2; Anniston, 2.

Natrix septemvittata (Say).

Midway, 3; Spring City, 1; Crozet, 2.

Thamnophis sauritus (Linn.).

Crozet, 1.

Thamnophis sirtalis (Linn.).

White Top, 1; Linville, 1.

Agkistrodon mokasen Beauvois.

Midway, 1.

Sistrurus miliarius (Linn.).

Morrisville.

Crotalus horridus Linn.

Mt. Sterling, 1; Anniston, 1.

Kinosternon odoratum (Latreille).

Anniston, 6; Manteo; Spring City.

Kinosternon subrubrum (Lacepede).

Mt. Vernon, 1; Midway, 1; Spring City.

Chelydra serpentina (Linn.).

Dogue Creek; Anniston, 2; Crozet.

Terapene carolina (Linn.).

Mt. Vernon; Midway; Anniston, 2; Crozet.

Chrysemys picta (Schneider).

Mt. Vernon; Midway, 1; Manteo, 1; Crozet.

Pseudemys concinna (Le Conte.)

Mt. Vernon, 1; Midway, 5.

Pseudemys elegans (Wied.).

Anniston, 1.

